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The Situation of Nursing Education in Turkey During the Coronavirus 19 Pandemic

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Abstract

Aim: In this research, it is aimed to determine how applied education in nursing is carried out in Turkey, the education-teaching methods used, the difficulties experienced, and solution suggestions during the COVID-19 pandemic.

Methods: The sample of the descriptive study consisted of nursing education administrators of 80 universities in Turkey that provide undergraduate education in nursing. The data were collected online between February 2021 and March 2021, in the Qualtrics program, through a questionnaire containing 43 questions about the introductory features of the institution and educational management during the epidemic process. In the evaluation of the data, descriptive statistics such as number, percentage, and mean were used.

Results: In 56.6% of the institutions, the number of students was over 500, the average number of students per instructor was 36.13 ± 17.71, and there were no instructors at the rate of 13-18.8% in the courses who have intensive credit and clinical practice; 52.5% of the administrators found the skill laboratory equipment in their schools partially sufficient; 52.5% of them had problems with education before the pandemic. During the pandemic, almost all of the schools held meetings (96.1%) on how to conduct education, and the university's top management (82.5%) and higher education institution (73.7%) were most influential in the decisions taken. It was determined that while all of the theoretical courses were conducted remotely and hybrid, only 8.8% of the laboratories and 12.5% of the clinical/field practices were conducted face-to-face. Almost all the administrators (96.5%) stated that they could not reach the learning outcomes due to the inability to perform clinical/field practices. Administrators have easy access to the document of the course of distance education (72.5%); they stated that distance education has positive contributions to save time and flexibility of the course time (48.8%).

Conclusion: The problems experienced in nursing education programs due to the COVID-19 pandemic, especially the inability to carry out laboratory and clinical/field applications, made it difficult to reach the educational goals. For this reason, it was concluded that practical education should be made face-to-face and the missing practices should be compensated.

Keywords: ***COVID-19 outbreak, nursing education, distance education***

Introduction

The world continues to fight the COVID-19 pandemic that began at the end of 2019. This pandemic has deeply affected and continues to affect all aspects of human life that are related to each other, such as economy, working life, education, relationships, habits, and especially health. In this process, countries have taken various measures to prevent the spread of the pandemic and to be protected from its effects in line with their economic power and ideological and philosophical understanding. One of the most prominent of these measures is related to education. According to a report published by the United Nations Educational, Scientific, and Cultural Organization, more than 1.5 billion students in 191 countries were affected by the pandemic, and schools were closed.[1] In our country, on March 18, 2020, formal education, including higher education, was suspended and distance education was initiated.[2] Distance education, which requires benefiting from technology, has made the inequality in education visible because not all educational institutions and students have access to technology.

While making education more efficient requires making use of technological opportunities, the importance of face-to-face education at all levels cannot be denied. This situation is of vital importance for disciplines such as nursing that aim to protect and develop public health

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and require human-to-human relationships. Nursing education, which is essentially a process of developing professional awareness, has theoretical and practical aspects.[3] The practical dimension of nursing education allows students to learn by experience. In this context, concerns were raised about the realization of nursing practices with distance education during the pandemic in the world, and it was emphasized that there was a need for evidence showing that goals were achieved.[4-10]

During the pandemic, in Turkey, the higher education institution (YOK) left the decision about whether students could be trained by taking protective measures on an appropriate date or by distance education for all programs with applied education, including nursing, to the universities.[2] The Turkish Nurses Association (THD) and Nursing Education Association (HEMED) announced their common opinions and suggestions to the public on September 10, 2020, in order to contribute to the quality education of nursing students. Some of these suggestions were that practical training should not be given by distance education unless it is compulsory, that depending on the situation of the pandemic, the education period should be extended if necessary, and that it should be ensured that the students make up for their practices in the real environment before they graduate.[11]

Despite the above-mentioned suggestions, it has been observed that applied education in nursing programs was mostly administered by distance education methods (case study/homework), and teaching methods showed significant differences depending on the technological access by the universities. Some studies have revealed that nursing students experienced various problems related to distance education.[7,12,13] Nursing, whose reason for existence is human health, can become a threat to public health as it moves away from qualified education. For this reason, it is clear that it is necessary to evaluate how nursing education is administered in Turkey during the pandemic, especially whether the desired goals in applied education have been achieved, and to discuss what can be done.

Objectives

This study was carried out in order to contribute to nursing education by determining how nursing education is administered in Turkey, the education and training methods used, the difficulties experienced, and solution suggestions during the COVID-19 pandemic. The following questions were sought to be answered in this study:

1. What are the manpower and infrastructure characteristics of nursing departments that provide undergraduate education?
2. How was nursing education administered during the pandemic? What are the problems experienced?
3. What are the factors that affect the planning of education during the pandemic?
4. What are the thoughts of the administrators about achieving the education objectives?
5. What are the administrators' thoughts and suggestions about distance education?

Material and Methods

Type of Research

It is a descriptive research.

Location of the Research

The research was conducted online and included the administrators of nursing education institutions in Turkey.

Population and Sample of the Research

The universe of the research consisted of nurse administrators (Dean/Head of Department) of higher education institutions that provide undergraduate nursing courses in Turkey. As this study evaluated the general situation of nursing education during the pandemic, nursing education administrators were included in the research because of their influence on the program. Data were collected between February 2021 and March 2021.

There are 137 universities in Turkey that provide undergraduate nursing courses.[14] Of these, 94 are public (68.6%) and 43 (31.4%) are foundation universities.[9] In this study, no particular sample was selected, and the study aimed to include all administrators. Feedback was received from the administrators of 82 universities in the study, and the incomplete questionnaires of 2 administrators were not included in the study. As a result, the data from the nursing education administrators (58%) of 80 universities were evaluated. Twenty (25%) of the administrators who responded to the survey worked in foundation universities and 60 (75%) in public universities. The distribution of the administrators involved in the study based on the province is given in Figure 1. The study was carried out in 50 provinces and 7 regions of Turkey. This is important in terms of representing the whole country.

Data Collection Tool and Data Collection

In the study, the data were collected online through a questionnaire, which was prepared by the researchers in the Qualtrics program by examining the literature[3,4,7,8] and included 43 closed and open-ended questions about the introductory features of institutions and educational management (theoretical, laboratory, and practice) during the pandemic. The questionnaire took an average of 15 minutes to fill out. In order to determine the clarity of the questions and possible problems, the questionnaire form was given to 5 faculty members before the study, and the form was given its final shape by rearranging the questions that were not well understood.

Statistical Analysis

The data were first transferred from the Qualtrics program to the Statistical Package for the Social Sciences (SPSS) program and then analyzed using the IBM SPSS statistics 26.0 package program (IBM SPSS Corp.; Armonk, NY, USA). In the evaluation of the data, number, percentage, and average were used.

Ethical Dimension of Research

In order to carry out the research, approval from Bilgi University Non-Interventional Ethics Committee (project number: 2021-40034-21, date: March 22, 2021) and written consent from the administrators participating in the study (only those who agreed to work online were allowed to fill out the questionnaire) were obtained.

Results

The study determined that the number of students in 56.6% of the institutions was over 500, there were 36.13 ± 17.71 students per instructor, this rate was 28.59 ± 17.89 in the practice, and 52.5% of the administrators found the skills laboratory equipment of the schools partially adequate. When the number of faculty members in the departments was examined, it was surprising that 13-18.8% of the departments did not have any faculty members in the departments with intensive credit and clinical practice. The department with the highest average number of faculty members was Principles

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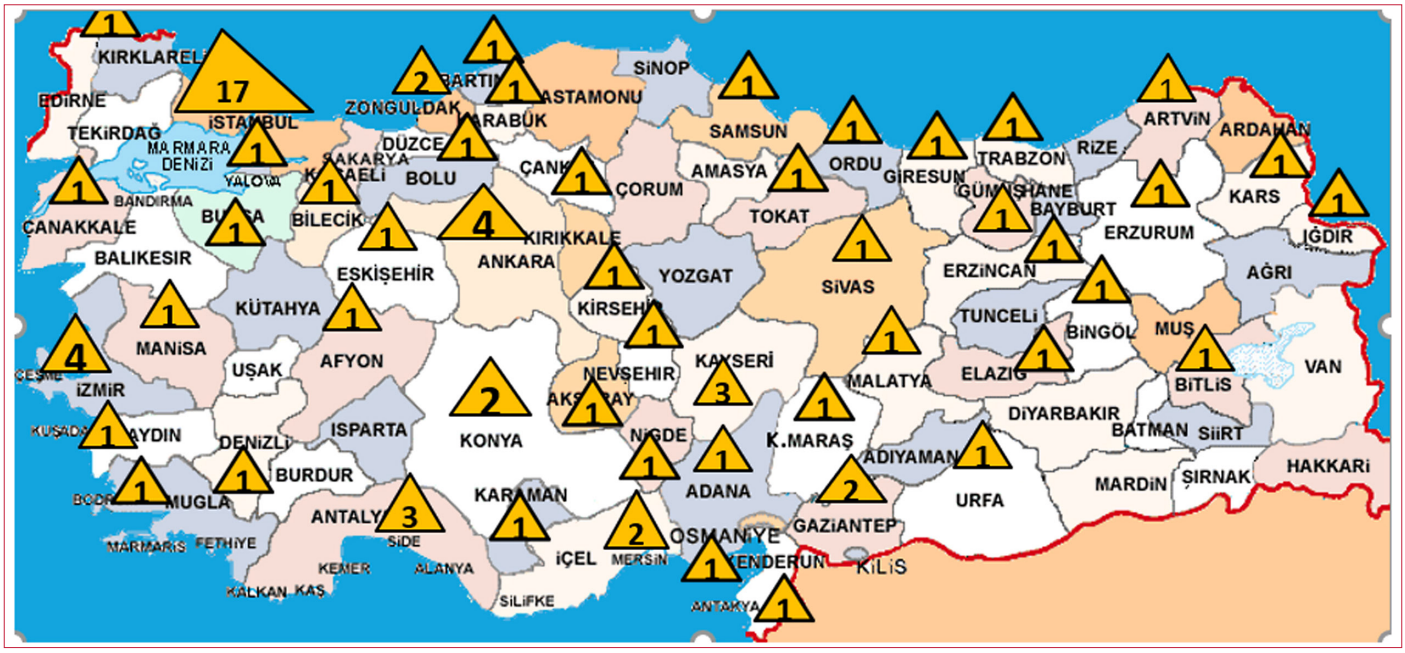

Figure 1. Distribution of nursing administrators of universities who responded to the questionnaire based on the provinces.

of Nursing with 3.60 ± 3.35, whereas the departments with the least average faculty members were Child Health Nursing with 2.77 ± 2.67, Nursing Management with 1.09 ± 1.27, and Education in Nursing with 0.34 ± 1.09 (Table 1). Although not included in the table, it was observed that there were a total of 1252 academic staff, including 693 faculty members and 559 teaching assistants, in 80 nursing departments and that the number of professor and associate professor positions was lower than the teaching staff.

More than half of the nursing administrators stated that they had problems with pre-pandemic education and stated these problems of finding a suitable application area for the objectives of the course (58.1%), the excess number of students, and an insufficient number of instructors (34.8%). It was determined that most of the institutions had distance education infrastructure before the pandemic (64.9%), and university courses, especially joint mandatory courses, and some elective courses were administered via distance education (Table 2).

During the pandemic, it was determined that the training of trainers related to distance education in universities was made by the university administration (especially for the use of the distance education system) (80.0%), whereas the training provided by the nursing department was 26.3%. During the pandemic, it was observed that almost all of the schools held conferences (96.1%) on how to administer education, and the university senior management (82.5%) and YOK (73.7%) were mostly responsible for the decisions taken, followed by the nursing program administrators and instructors with a rate of 68.8% and professional organizations, such as HEMED, with a rate of 36.3% (Table 2).

It has been determined that most of the schools administered theory, laboratory, and practice lessons via distance education during the pandemic. Although all of the theoretical lessons were administered remotely and hybridly (remotely and face-to-face), only 8.8% of the laboratories and 12.5% of the clinical/field practices were conducted face-to-face. However, 52.5% of the laboratories and 41% of the clinical/field administrations were done entirely remotely. Only 3.7% of schools postponed laboratory lessons and 2.5% of schools postponed clinical/field practice lessons. It is noteworthy that the rate of those who apply the hybrid method in laboratory and clinical training is approximately 1/3 (Table 3).

When the teaching methods used by schools during the pandemic were examined, it was observed that the direct lecture method was used in theoretical lessons the most, but it was determined that active teaching methods, such as case studies, group work, etc., were also widely used. Regarding laboratory lessons, it was determined that the rate of synchronous lectures was 35.0%, mostly case/care plan analysis was done, whereas in clinical/field practice, care plan/case analysis, group work, and skill videos were used the most (Table 3).

In the evaluation of the theoretical lessons during the pandemic, it was observed that the online exam (95.0%), case analysis/care plan assignments (90.0%), and presentation (66.3%) methods were used the most, the same methods were used at a higher rate in the evaluation of laboratory lessons, and skill videos were also used. In the evaluation of clinical/field practices, case analysis/care plan (88.8%), written project/written report (73.7%), online exam (66.3%), and presentation (63.7%) methods were used the most (Table 3).

It is noteworthy that the number of administrators who stated that they could not achieve the learning outcomes during the pandemic was high. When the reasons for not achieving learning outcomes in theoretical lessons were examined, students' indifference to the lessons ranked first with a rate of 50.8%, followed by infrastructure problems with 29.8%, and insufficient teacher–student interaction with 28.0%. Among the reasons for not being able to complete the laboratory lessons, the inability to perform face-to-face laboratory practice was the first with 47.5%, followed by the inadequacy

Table 1. Manpower and Infrastructure Characteristics of Nursing Faculties/Departments of Universities (n=80)

Characteristics	n (Min-Max)	%
Total number of students (n = 76)*		
250 and below	12	15.8
251-499	21	27.6
500 and above	43	56.6
Average number of students in total (n = 76)*	606.96 ± 349.01 (30-1600)	
Average number of students per instructor (n=61)*	36.13 ± 17.71 (6-90)	
The average number of students per instructor in applications (n = 78)*	28.59 ± 17.89 (3-100)	
Number of students per instructor in applications (n = 78)*		
<8	3	3.8
9-12	11	14.1
13-16	17	21.8
17-20	4	5.1
21-24	10	12.8
≥25	33	42.3
Average number of total faculty members in academic staffs		
Principles of Nursing	3.60 ± 3.35 (0-17)	
Child Health Nursing	2.77 ± 2.67 (0-13)	
Internal Medicine Nursing	3.05 ± 3.07 (0-15)	
Surgical Diseases Nursing	3.15 ± 2.86 (0-13)	
Obstetrics–Women's Health Nursing	3.04 ± 3.19 (0-16)	
Public Health Nursing	3.19 ± 2.74 (0-11)	
Psychiatry and Mental Health Nursing	2.80 ± 2.75 (0-13)	
Management in Nursing	1.09 ± 1.27 (0-6)	
Education in Nursing	0.34 ± 1.09 (0-9)	
Skills laboratory equipment (n = 80)		
Adequate	38	47.5
Partly adequate	41	51.2
Inadequate	1	1.3
Solutions to overcome laboratory inadequacies (n=39)**		
Utilizing videos	10	25.6
Performing a case analysis	7	17.9
Making arrangements for the laboratory	8	20.5
Completing deficiencies in the application	13	33.3
Role play/demonstration	2	5.1
Working on a model	4	10.2
There are no methods	4	10.2
Using the department laboratory	1	2.6

*Number of people who answered this question.
**More than 1 answer was given. Percentages are taken over n.

of appropriate methods and materials (video, etc.) for the laboratory lessons, student indifference, and infrastructure problems (18.0%). Almost all of the administrators (96.5%) stated that they could not achieve learning outcomes in clinical/field practices (Table 4).

Administrators stated that distance education has some positive contributions for students and educators. Some of the positive contributions included conducting laboratory lessons (72.5%), easy access to the course documents, and time saving and lesson time flexibility at similar rates (48.8%). While 78.4% of the administrators stated that the applications of the courses should be postponed during the pandemic and done face-to-face at an appropriate time, 4.1% stated that the applications can be done by distance education during this period (Table 5).

Discussion

During the pandemic, which has deeply affected human health and all aspects of life, nursing has become a discipline whose importance has been recognized in the struggle; however, the administration of nursing education has been immensely affected. The International Council of Nurses announced that 73.0% of its affiliated national associations reported that the administration of nursing education was interrupted.[15] In this study, it was determined that in the 80 nursing schools, the theoretical lessons were not administered completely face-to-face, the practices were carried out face-to-face in only 10 schools, and the decisions of the university senior management and YOK were mostly influential in the planning of clinical education. This situation shows that nurses are not effective enough in managing their own education. A common attitude could not be developed in the management of nursing education during the pandemic in Turkey. However, nurses' ability to make quick and accurate decisions in practice and training in crisis situations is an indication of their professional autonomy as well as a necessity of their responsibilities to society.[16,17] In this process, similar situations were observed in other countries as well.[10,18,19] At the beginning of the pandemic in Turkey, it was reported by YOK that theoretical lessons in universities should be administered using digital opportunities and distance education methods and that the practices could be carried out on dates and with protective measures that universities deem appropriate.[2] Nursing Deans Council, Turkish Nurses Association (THD), and Nursing Education Association (HEMED) proposed that applications be completed in a real environment, considering the prolongation of the education period.[11] In this study, the majority of nursing education administrators stated that the practices should be completed. This result reveals the need to monitor to what extent this situation will take place.

Distance education, which was applied due to extraordinary conditions, caused the problems in nursing education to worsen and caused significant difficulties in achieving the expected results from education.[7,8,19] In the study, more than half of the administrators stated that they had problems with clinical/field practices before the pandemic. When these problems were examined, the difficulty of finding a suitable application area for the objectives of the course was expressed in the first place and the shortage of instructors and the surplus of students were expressed in the second place. Other findings obtained in the study draw attention to the inadequacy of the conditions of qualified education. In a workshop report, which evaluated the current situation of the nursing departments of YOK in 2017, the inadequacy of the number of faculty members and the

Table 2. Infrastructure Characteristics of Faculties and Departments Related to Distance Education Before and During the Pandemic and the Problems Experienced

Characteristics and Problems with Distance Education	n	%
Having problems with education before the pandemic (n=80)		
Yes	42	52.5
No	38	47.5
Problems related to education before the pandemic (n=42)		
Difficulty in finding suitable space for course objectives	25	58.1
Lack of instructors/surplus of students	15	34.8
Physical conditions that make the application difficult, transportation problems	2	4.6
Evaluation of whether the objectives have been achieved in practice	1	2.3
Lack of common awareness among faculty members	1	2.3
Other	2	4.6
Presence of distance education infrastructure before the pandemic (n=77)		
Yes, synchronous	28	36.4
Yes, asynchronous	22	28.6
No	27	35.1
The suitability of the existing infrastructure for distance education (n=77)**		
Yes	46	59.7
Partially	23	29.9
No	8	10.4
Presence of professional courses conducted via distance education (n=77)**		
Yes	15	19.5
No	62	80.5
Courses conducted via distance education (n=11)*		
Joint mandatory courses[a]	5	45.4
Some elective courses[b]	4	36.4
Theoretical lessons for completing bachelor's degree in nursing	2	18.2
Informing instructors about distance education (n=80)*		
Yes, by the university	64	80.0
Yes, by the nursing program	21	26.3
Yes, with the instructors' own possibilities	8	10.0
Yes, we had training on this before the pandemic	8	10.0
No	4	5.0
Status of holding meetings about the administration of education (n=77)**		
Yes	74	96.1
No	3	3.9
Factors affecting the planning/management of clinical education during the pandemic (n=80)**		
University senior management decisions	66	82.5
Joint decisions of nursing program administrators/responsible instructors	55	68.8
Decisions taken by Higher Education Institution	59	73.7
HEMED and other nursing organizations decisions	29	36.3
The decision of the responsible instructor of each course	31	39.0
Hospital management decision**	1	1.3

*The number of respondents.
**Percentages with more than 1 answer are based on n.
[a]English, AIT, Turkish Language,
[b]Basic Information Technologies, Occupational Safety and Health, Physiopathology, Patient Safety

excess number of students in nursing education institutions were determined as the priority problem areas and it was recommended to carry out improvement studies.[20] According to the findings of our study, it can be said that these problems continue despite the fact that 4 years have passed since the aforementioned nursing workshop.

Nursing educators, who entered the pandemic with the problems discussed above, had to struggle with the difficulties created by distance education. In our study, it is understood that some universities have an insufficient infrastructure for distance education, which is intended to be used more widely in the future,[21] teaching staff do not have enough experience with distance education, and the education given on the use of the distance education system to the teaching staff is limited. All these difficulties affected all stages of the education process and made it difficult to achieve the learning goals. In our study, the majority of nursing education administrators stated that they could not adequately reach the goals in terms of theory, laboratory, and practice lessons. The main reason for not reaching the goals in theoretical lessons was the insufficient participation of the students in the lessons/the indifference of the students (50.8%), whereas the reason for not reaching the goals in practical (95.0%) and laboratory (47.5%) lessons was that the trainings were not administered in the real environment. There may be various reasons why students' participation in the lesson is insufficient and why they are not interested in the lesson. Studies showed that factors such as limited computer and internet facilities,[8,22-25] difficulty in concentrating on the lesson at home,[24] limited interaction with students,[25,26] and increasing homework and responsibilities[25] reduce the interest in lessons. Furthermore, studies showed that web-based education contributes poorly to application skills[27] and students have difficulties in understanding the application sections of the courses.[28] These results reveal the importance of ensuring access to computer and internet facilities for all students and the use of effective teaching methods in increasing student participation and the interest in

Table 3. The Methods of Conducting Theoretical, Laboratory, and Clinical/Field Lessons in the Pandemic and Methods Used in Education and Evaluation

	Theoretical		Laboratory		Clinic/ Field	
Mode of Conduct of Education (n=80)	n	%	n	%	n	%
Completely face-to-face	-	-	7	8.8	10	12.5
Completely remote	68	**85.0**	42	**52.5**	33	41.3
Face to face + remote-(hybrid)	12	15	28	35.0	31	**38.8**
Delay	-	-	3	3.7	2	2.5
Varies according to courses/classes	-	-	-	-	4	5.0
Education methods used*						
Lecture via power-point presentations	67	**83.8**	-	-	-	-
Discussion lecture	63	**78.8**	-	-	-	-
Question-answer	72	**90.0**	-	-	-	-
Case study	67	**83.8**	-	-	-	-
Role play	21	26.3	24	30.0	25	31.3
Team work	63	**78.8**	52	**65.0**	53	66.3
Skills laboratory simultaneous demonstration	-	-	28	35.0	30	37.5
Case analysis/care plan	-	-	64	**80.0**	71	**88.8**
Skills laboratory asynchronous demonstration	-	-	32	40.0	32	40.0
Skill Videos	-	-	69	**86.3**	51	63.7
Standard patient use	-	-	7	8.8	15	18.8
Other**	4[a]	5.0	3[b]	3.8	6[c]	7.5
Evaluation methods*						
Online exam	76	**95.0**	57	**71.3**	53	**66.3**
Written project/written report	34	42.5	45	56.3	59	**73.7**
Making a presentation	53	**66.3**	43	53.8	51	**63.7**
Video production	34	42.5	38	47.5	38	47.5
Case analysis/care plan	72	**90.0**	62	**77.5**	**71**	**88.8**
Making a skill video	-	-	38	47.5	32	40.0
Video analysis session with group	-	-	24	30.0	22	27.5
One-on-one video analysis session	-	-	6	7.5	8	10.0
OSPE	-	-	10	12.5	12	15.0
Using skill lists	-	-	3	3.8	3	3.8
Other**	4[d]	5.0			4[e]	5.0

*More than 1 answer was given. Percentages were taken over n.
**[a]According to the nature of the course, for example, collecting family data and making presentations on the online platform for public health (1), Uploading power-point audio materials to the system before lesson (1), Seminar presentation (1), In-depth interviews and analysis, project and project idea studies, educational material development, concept maps (1).
[b]Face-to-face education on models in the skills laboratory (1) Skill videos prepared by the student (1), Simulation analyses were done as a preliminary preparation, it will contribute when done during face-to-face education (1).
[c]Postponement (2), They performed clinical and field practices in the real environment (1), Case analysis and discussion in the clinic (1).
[d]According to the nature of the course, for example, collecting family data and making presentations on the online platform for public health (1), Uploading Power-point audio materials to the system before lesson (1), Seminar presentation (1), In-depth interviews and analyses, project and project idea studies, training material development, concept maps (1).
[e]Postponement (2), Face-to-face clinical exam (2).
OSPE, objective structured practical examination.

Table 4. Achieving Learning Outcomes in Theoretical, Laboratory, and Clinical/Field Lessons During the Pandemic

	Theoretical (n=77)*		Laboratory (n=74)*		Clinic/Field (n=74)*	
Achieving Learning Outcomes	n	%	n	%	n	%
Yes	20	26.0	13	17.6	17	23.0
Partially	51	66.2	49	66.2	45	60.8
No	6	7.8	12	16.2	12	16.2
Reasons for failing in achieving outcomes**	n=57*		n=61*		n=57*	
Students' low participation in course/application/lab and their indifference	29	50.87	11	18.03	7	12.2
Infrastructure problems related to university/students[a]	17	29.82	11	18.03	4	7.0
Insufficient/absent interaction with the educator–student	16	28.07	-	-	-	-
Problems related to teaching methods[b]	9	15.78	12	19.67	-	-
Problems related to educators[c]	2	3.50	5	8.19	-	-
Problems related to evaluation of lectures/labs/applications[d]	10	17.54	6	9.83	8	14.0
Failure to carry out lab/application	-	-	29	47.54	55	96.5
Failure to carry out applications in accordance with the purpose of the course	-	-	-	-	17	29.8

*This is the number of people who answered the question.
**People gave more than 1 answer. Percentages were taken over n.
[a]Internet, distance education program, procedures,
[b]Video, failure to reach the goal in homework etc.
[c]Homework etc. increase in workload, unfamiliarity with the system,
[d]Exam security problems, not getting enough feedback, not being able to test the clarity of the subjects

Table 5. Opinions of Administrators on Distance Education

Positive contributions (n=80)*	n	%
Time saving	39	48.8
Flexible course times	39	48.8
Better interaction with the educator	12	15.0
Better interaction with classmates	4	5.0
Easy access to course documents	58	72.5
It did not contribute	3	3.8
Other**	4	5.0
How to conduct laboratory and clinical courses (n = 74)*	n	%
Applications of vocational courses should be postponed on the condition that students complete them before graduation	58	78.4
Applications should be administered with distance education	3	4.1
Applications should be made on time by taking precautions	9	12.1
Seniors must graduate on time	3	4.1
Recent graduates must be trained by the Ministry before they start working	1	1.3

*Individuals gave more than one answer. Percentages were taken over n.
**We did not administer education remotely (1), Students were able to access and watch the course records beforehand (1), Our dominance in technology has increased. We had the opportunity to discuss the issues that we considered incompletely discussed in case analyses in the clinic with the student by taking an extra time (1), theoretically, it provided much more access to resources and the possibility of conferences, presentations, and meetings (1).

distance education. Agu et al[29] (2021) emphasize that it should be considered that the problems of the pandemic reflected in education in developed countries are different in poor or developing countries.

In this study, the administrators stated that during the pandemic, the lessons were taught by using questions–answers, lectures via power-point presentations, and case study methods as the top 3 teaching methods in theoretical lessons. Similarly, in a study by Singh et al[23] on e-learning methods in nursing and medical education during the COVID-19 pandemic in India, lecture via power-point presentation was determined as the most widely used teaching method. In a study by Kızıltepe and Kurtgöz,[28] students reported that homework (73.0%) and online lectures (21.1%) were used the most in classes, respectively. These findings show that theoretical lessons are mainly administered in the form of information transfer during the pandemic and that initiatives should be taken in this regard. In the HEMED[26] student workshop report, students stated that they wanted enriched course contents and the use of interactive methods as well as visual and audio materials.

In our study, administrators stated that remote laboratory lessons were mostly administered by using skill videos and case studies, whereas practice lessons were mostly conducted with groups using case study methods. However, it is recommended to use tools such as online course materials, discussion boards, simulation, videos, mobile technologies, and social media platforms to facilitate learning in distance education.[21]

It is stated that clinical/field practices and laboratory lessons cannot be administered by distance education due to the necessity of learning by experience in nursing education, and a mixed education model in which online and face-to-face methods are used together is appropriate in applied science fields.[7,8,21,29-31]

In the education process, achieving the determined goals and improving the process is possible with measurement and evaluation.[32] In our study, the administrators stated that the online written exam took the first place in the evaluation of theoretical lessons, whereas they used the online written exam together with case analysis–treatment plans in laboratories and practices. Accordingly, it can be said that methods that are effective in developing psychomotor skills (simulation, video shots in which skills are repeated in students' own environments, etc.) and techniques and methods that measure psychomotor behaviors are not used adequately in the evaluation of laboratories and practices. There are no adequate studies on the measurement and evaluation methods in nursing education during the pandemic. A study conducted by Palmer et al[33] to evaluate the skill proficiency of students stated that the skill videos taken by the students at home were used in the evaluation. In the studies, it was reported that there are difficulties in the measurement and evaluation in the distance education process[25,30,34,35] and that process-oriented measurement and evaluation approaches should also be used instead of result-oriented measurement and evaluation, which has been a problem that has not been overcome over years.[31,35] According to these results, it can be said that measurement and evaluation methods suitable for distance education have not been used enough in nursing education programs during the pandemic.

Although the importance of face-to-face education in nursing education is clear, nursing education administrators indicated that distance education had certain positive features, such as the fact that it provides easy access to the records and documents related to the course, enables the student to use the time effectively, and provides flexibility in the course hours. In support of these results, in the study by Bdair,[25] in addition to the similar advantages of distance education, positive features, such as the use of a wide variety of resources, an innovative strategy, and ease of course and exam administration were identified. This result shows that the positive features of distance education opportunities can be used for some courses other than applied vocational courses after the pandemic. The pandemic has been a process that has encouraged instructors as well as practitioners and administrators to think over such issues. Parse[36] sums this situation up best in the phrase, "Often, the aftermath of an earthquake is a clear light that shines on unseen possibilities that were previously hidden amid the debris of borrowed vision and immovable routines."

Conclusion

In addition to increasing awareness regarding the problems in nursing education in our country, this study revealed that applied education was seriously affected during the pandemic. The root causes for this include the unplanned opening of universities without considering the infrastructure; inadequacy of criteria related to academic development; delay in vaccination throughout the country, which is considered the most effective force in the fight against the pandemic, and consequently, the ineffectiveness of laboratory lessons because a majority of student nurses and lecturers were not vaccinated or their vaccinations were delayed; the lack of acting with a common consciousness in nursing. In the future, nursing educators should fight for more qualified education by sharing their experiences during the pandemic. However, it should not be forgotten that it would be appropriate to carry out this struggle without ignoring the realities of the country and the world. In line with the results obtained from the study, it is recommended that the laboratories and practices of nursing education should be administered face-to-face, technological opportunities should be used for education, the development of educators in this sense should be continued, policies to strengthen academic staff (number and quality) should be developed, and all educational institutions should act with a common attitude and cooperation in crisis situations, such as pandemics.

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